

Figure 1A

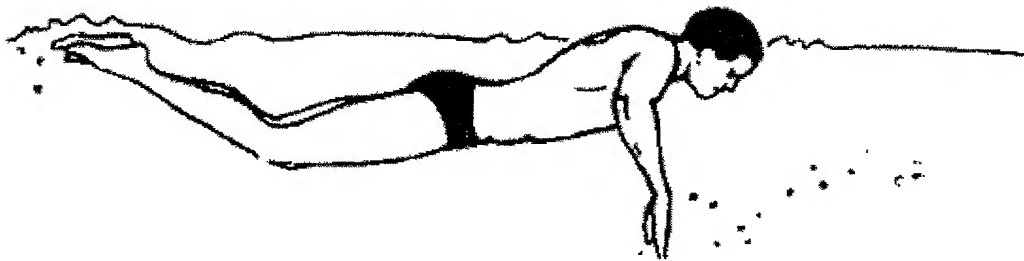


Figure 1B

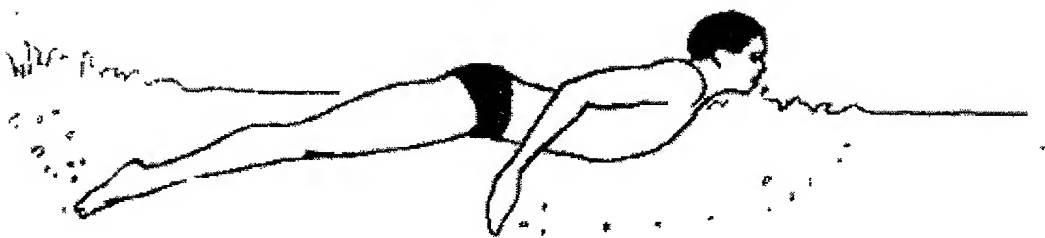
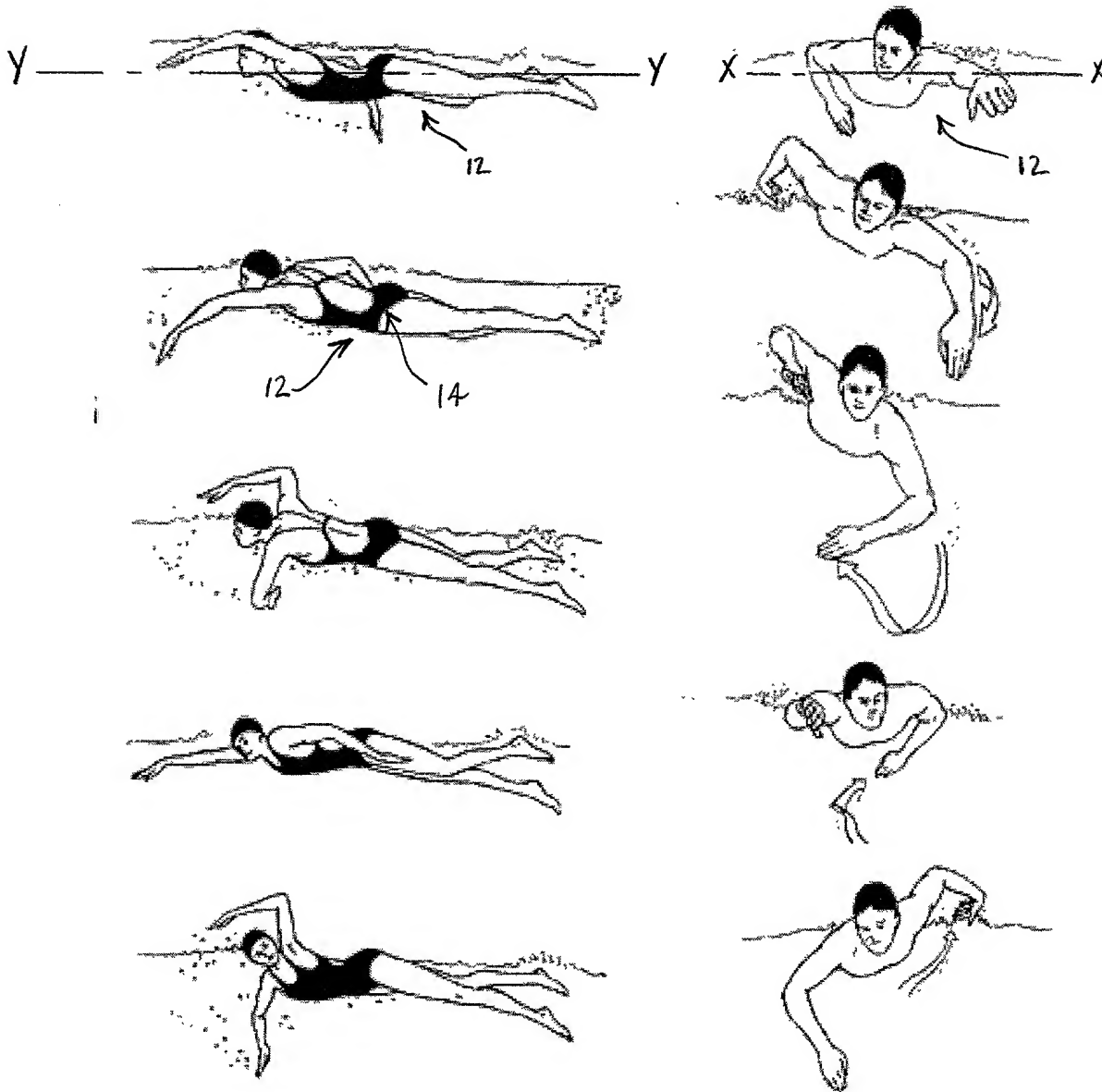


Figure 1C

10056304-01302



Figures 2A-2E

Figures 2F-2J

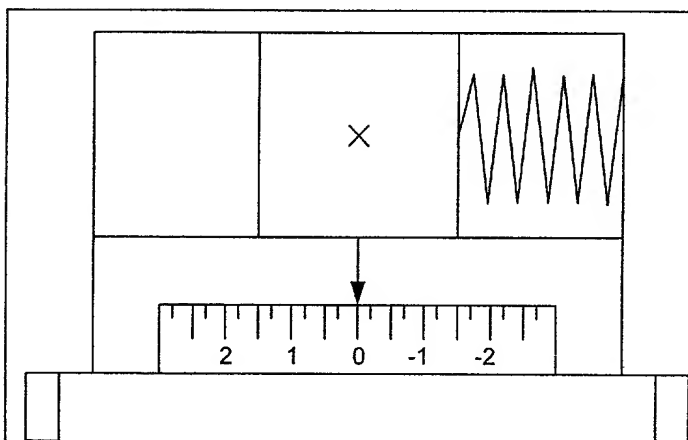


Figure 3: The accelerometer is not submitted to elongation or compression forces.

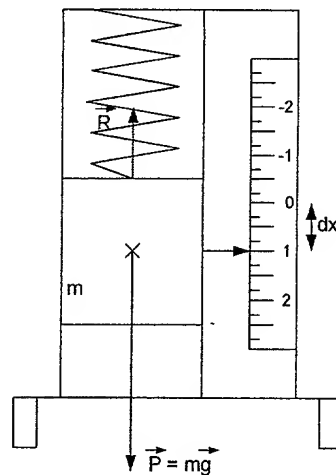


Figure 4: The accelerometer is submitted to the force of gravity (static acceleration).

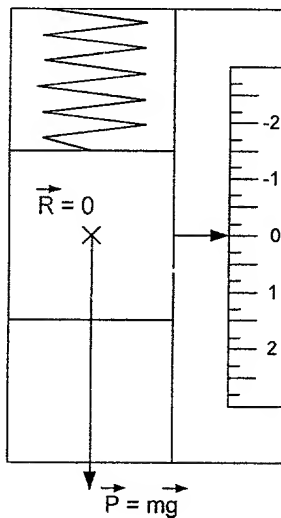


Figure 5: System in free fall

1005304-0100

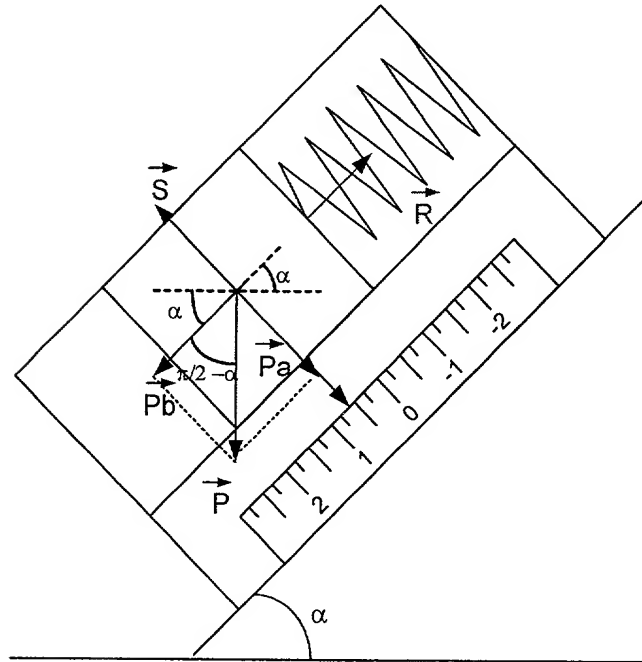
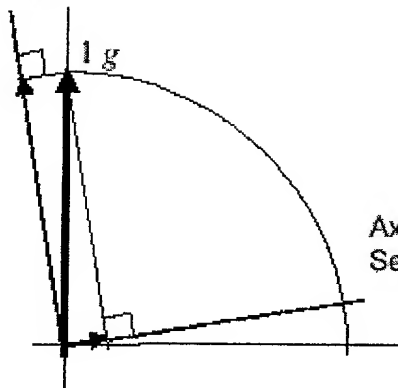


Figure 6: Accelerometer laying at an angle

Axis of
Sensitivity



Axis of
Sensitivity

Angle α	Sinus α	$\Delta\alpha$
0	0.00	
10	0.17	0.17
20	0.34	0.17
30	0.50	0.16
40	0.64	0.14
50	0.77	0.13
60	0.87	0.10
70	0.94	0.07
80	0.98	0.04
90	1	0.02

Figure 7 Axes of sensitivity

120113.401

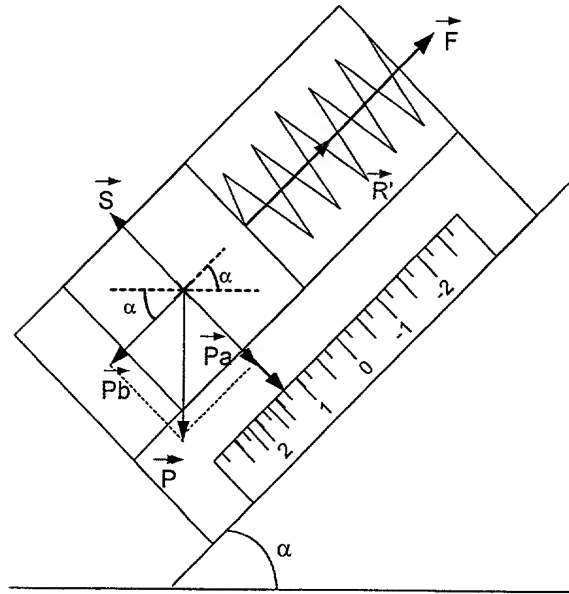


Figure 8: Dynamic acceleration applied to the system

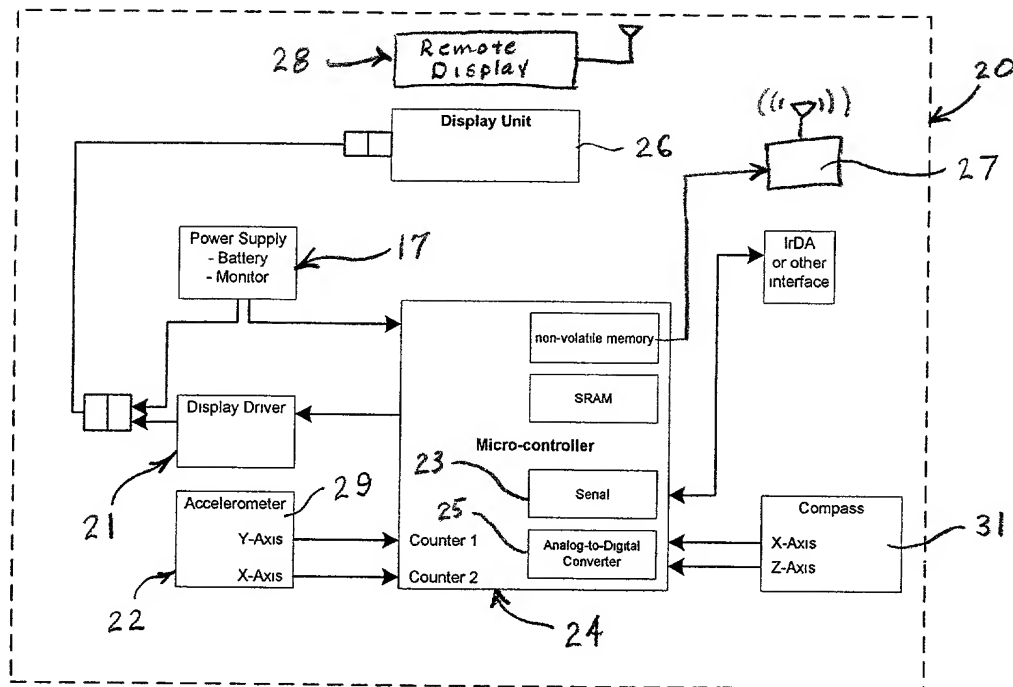


Figure 9

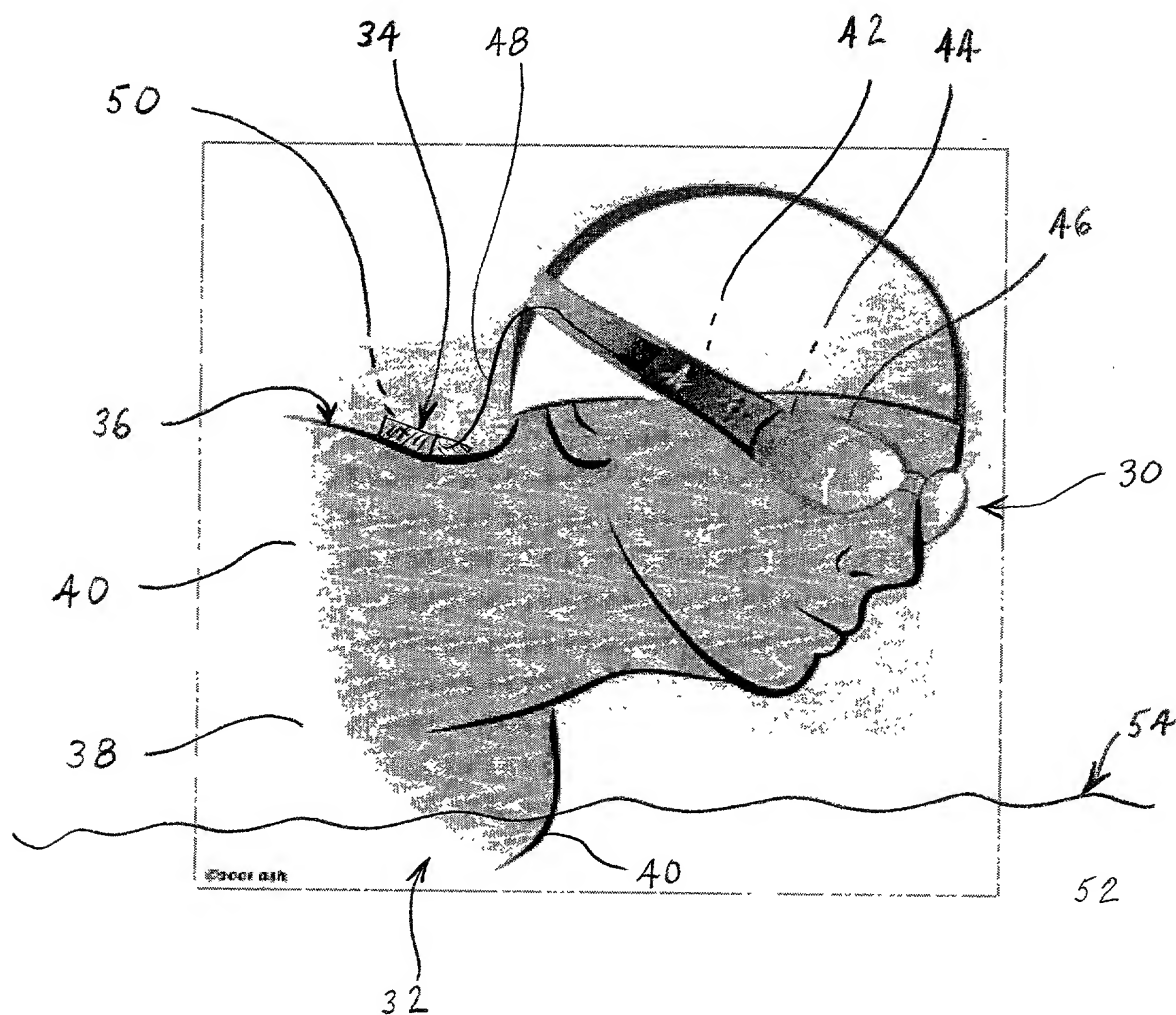
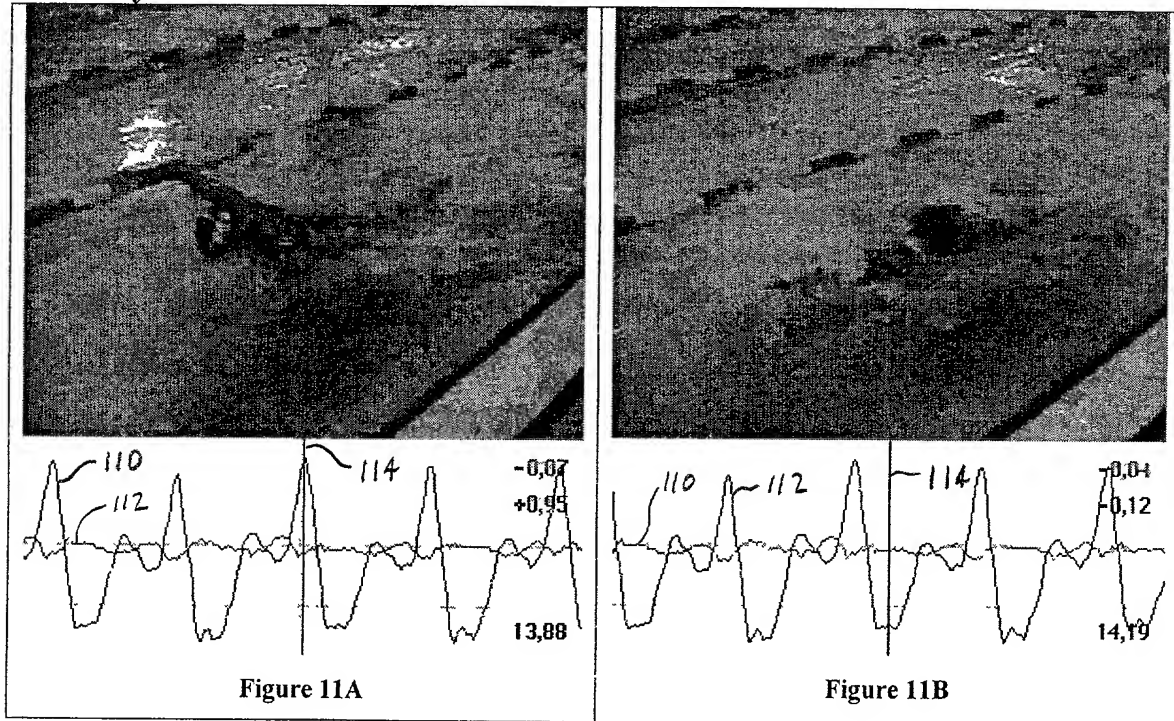
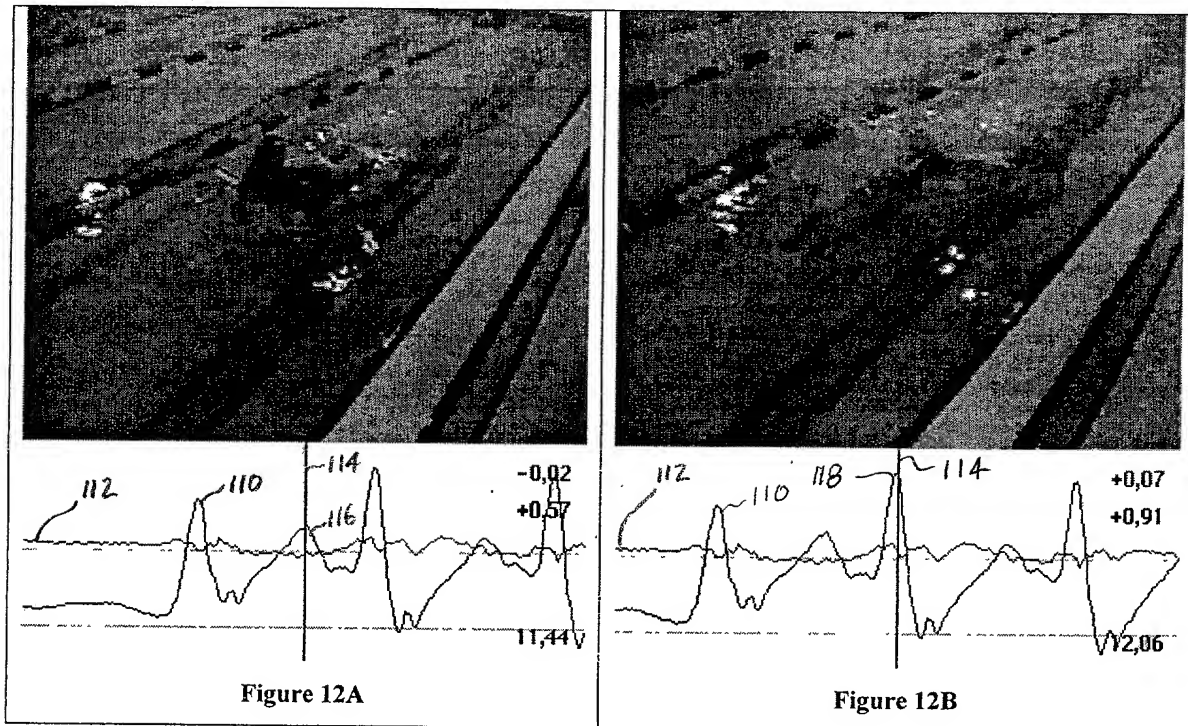


Figure 10

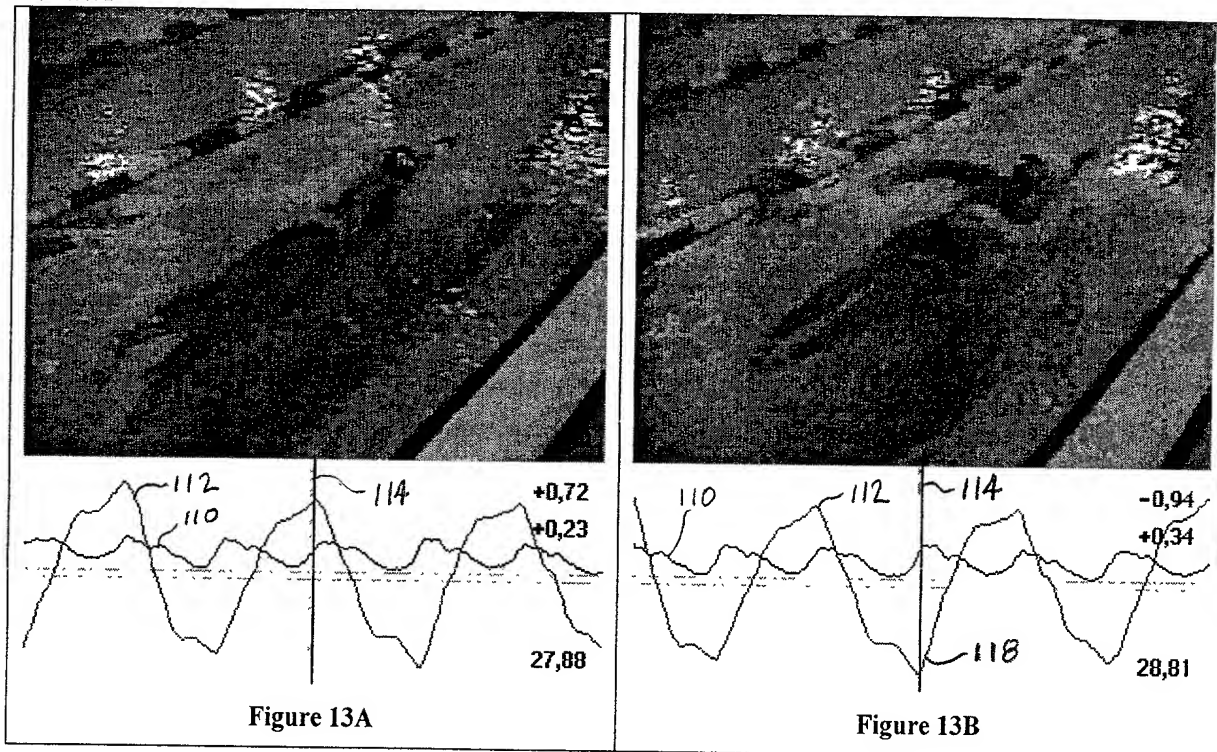
Butterfly



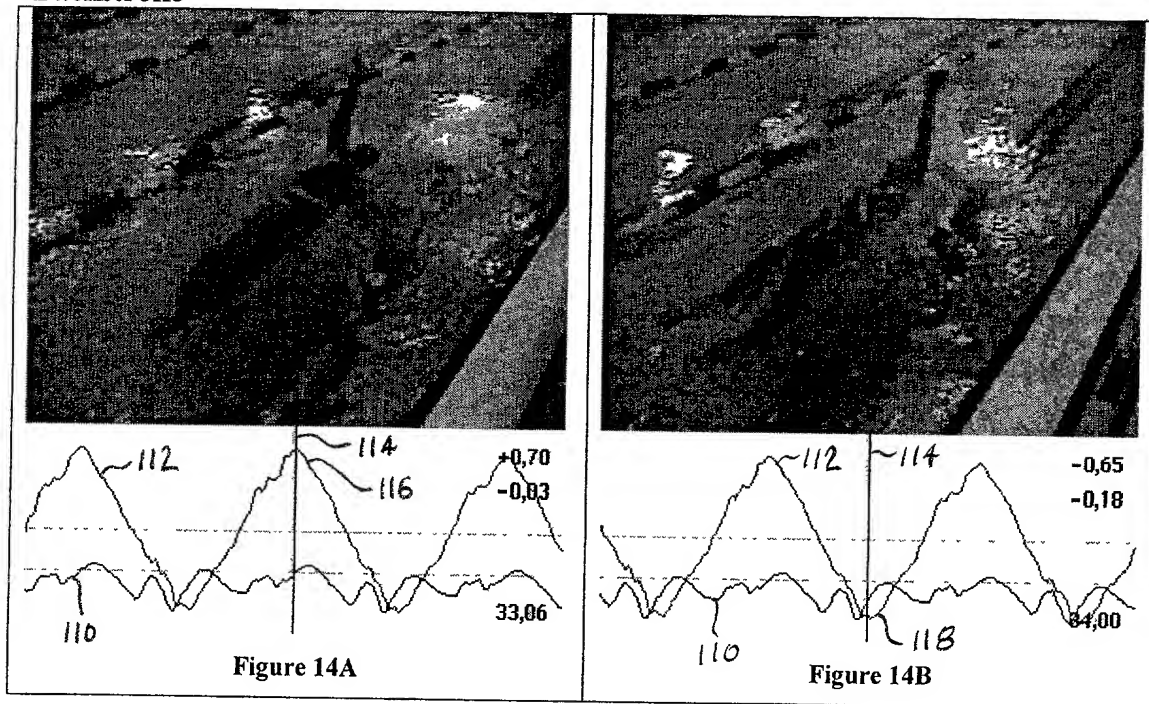
Breaststroke



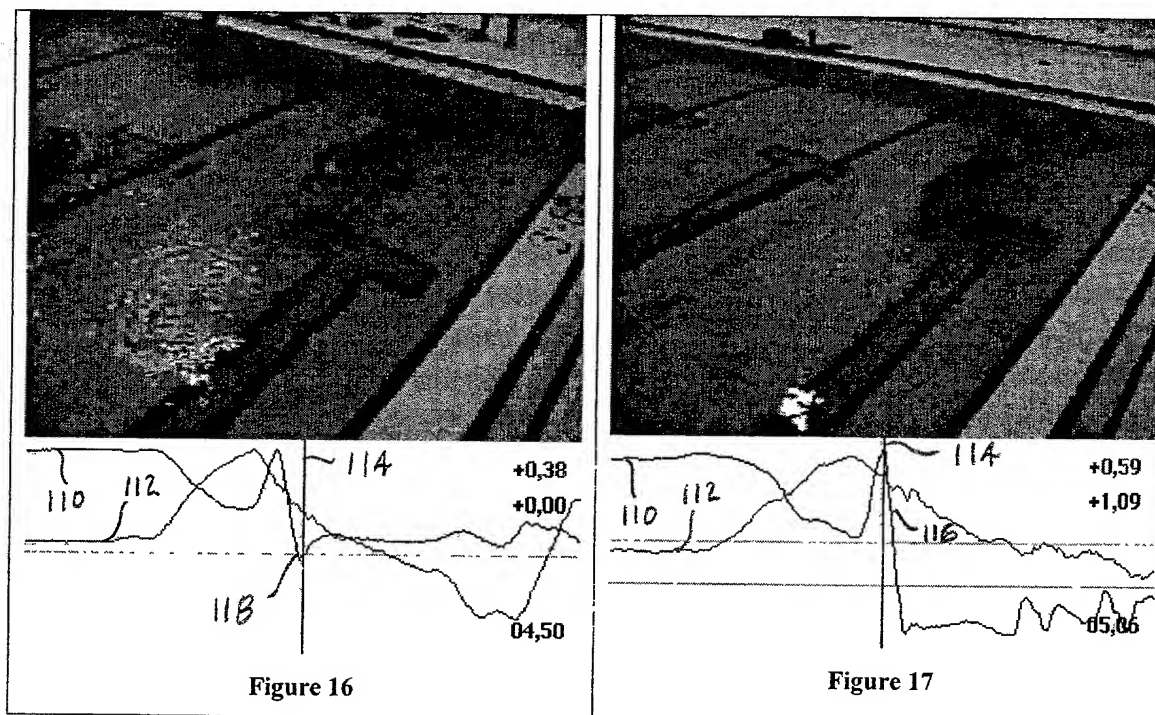
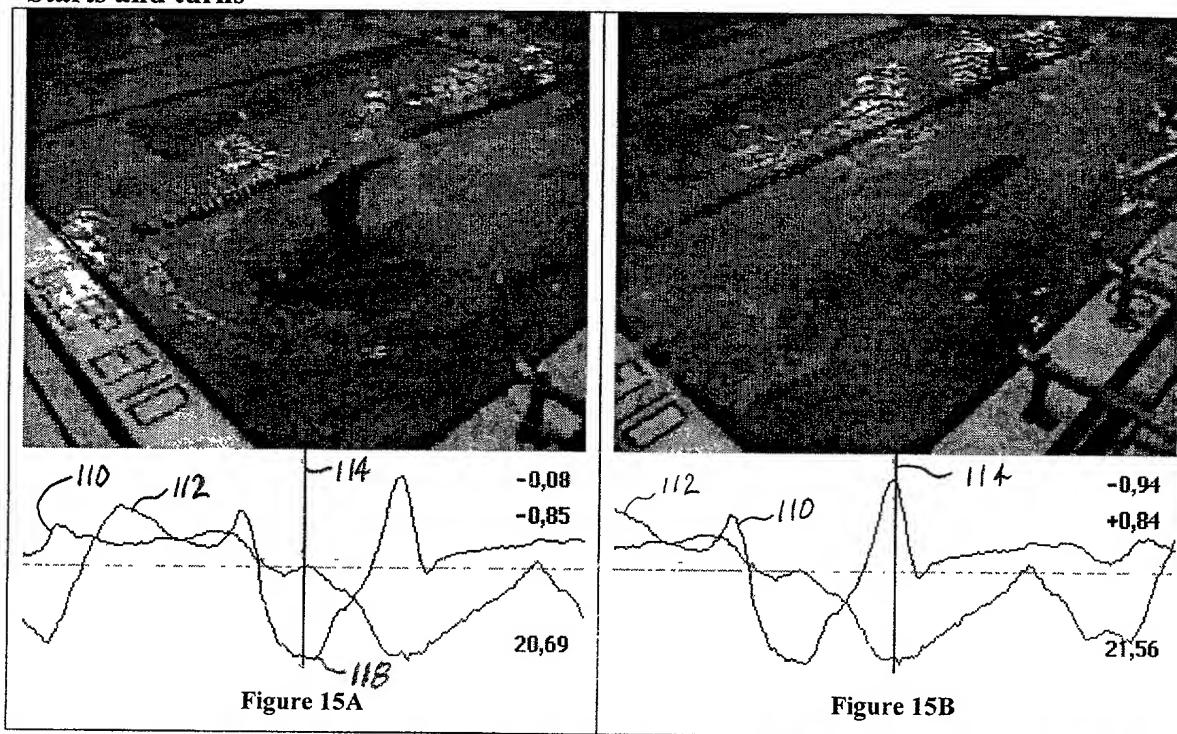
Crawl



Backstroke



Starts and turns



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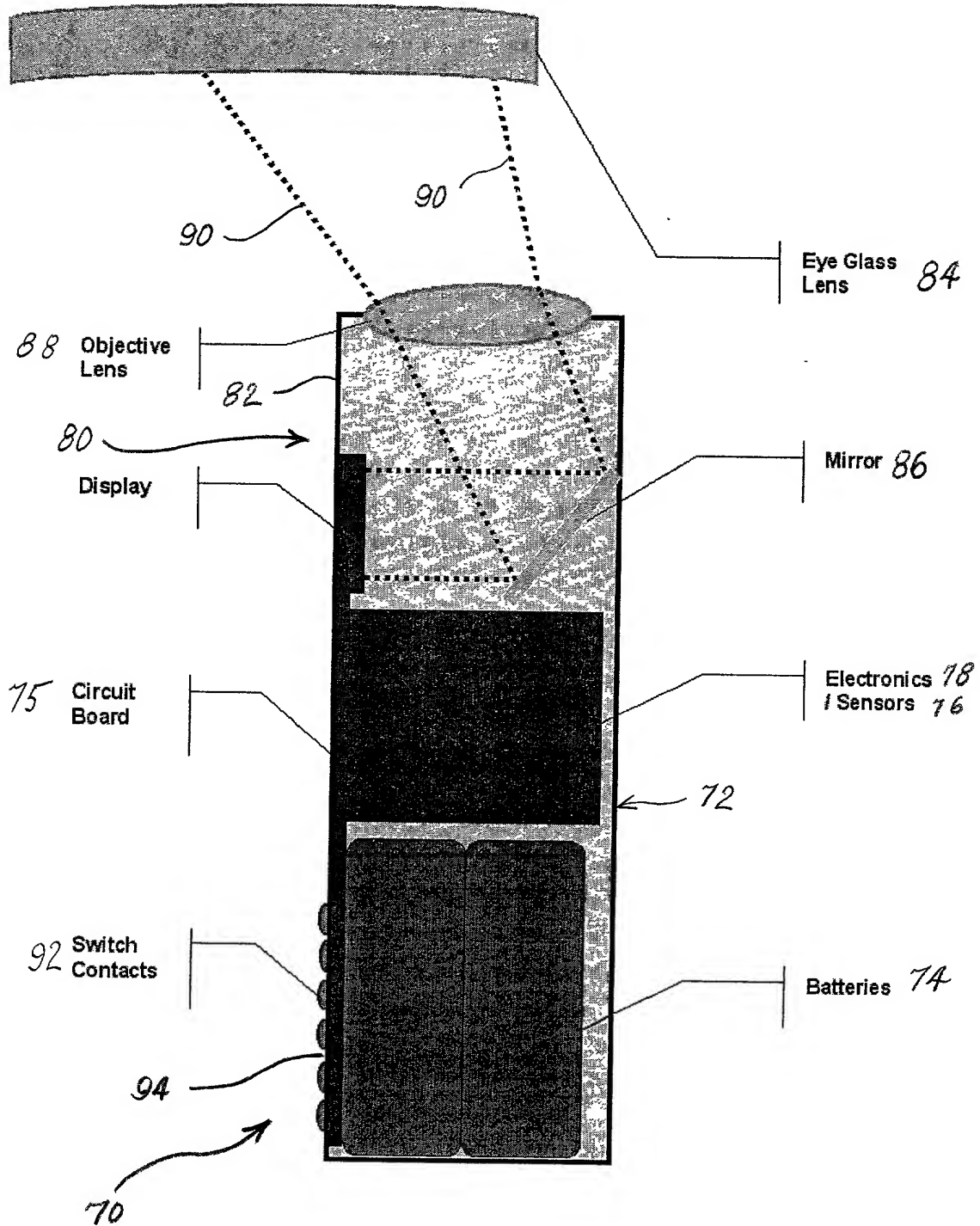
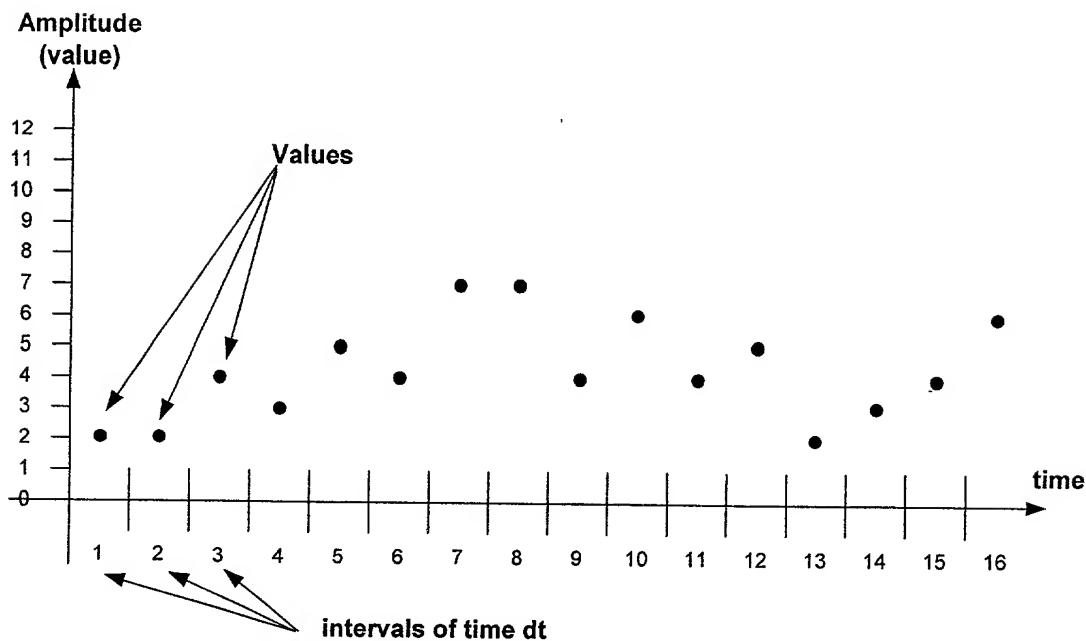


Figure 18



- Digital samples provided by the accelerometer every dt interval of time. if the accelerometer is set to sample at 50Hz, $dt = 1/50 = 20$ ms.

Figure 19: Example of digital samples captured by the accelerometer at 50Hz

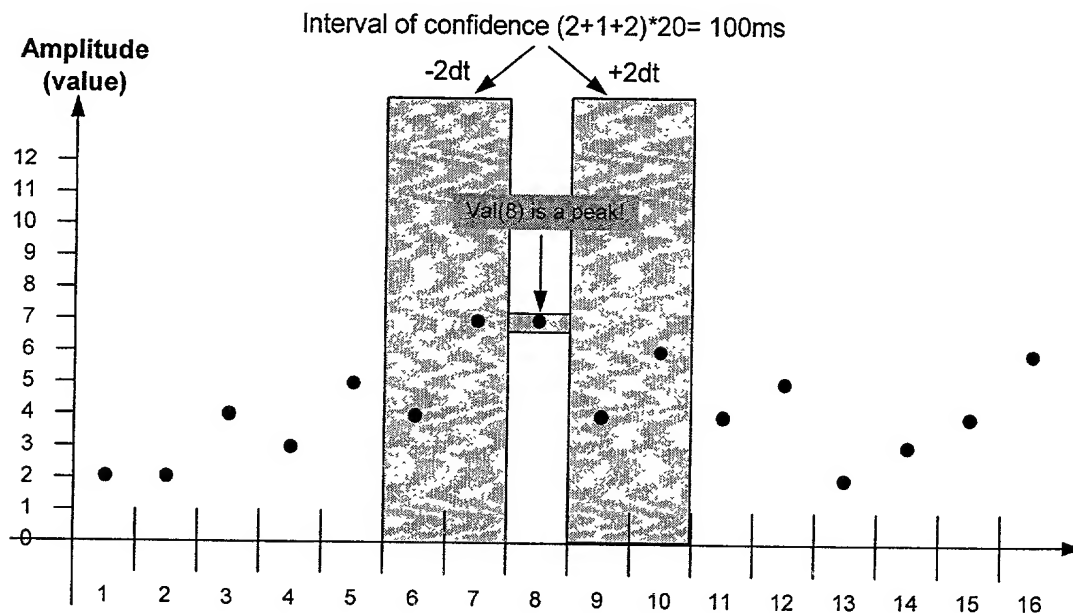


Figure 20: Illustration of an interval of confidence representing 100ms. Sample 8 is a peak centered within an interval of 100ms

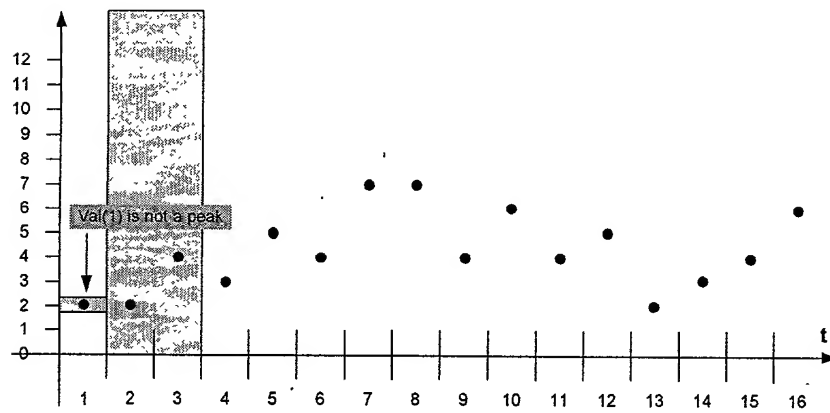


Figure 21: 1st digital sample is compared to its 2 closest neighbors to the right (no data available to the left)

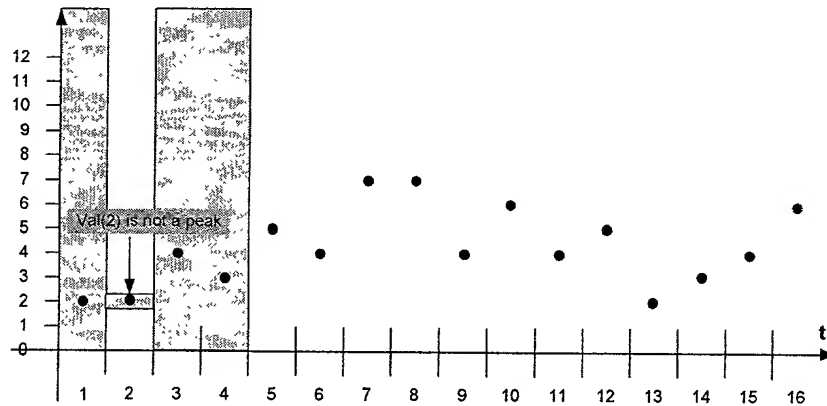


Figure 22: 2nd digital sample is compared to its 2 closest neighbors to the right and unique neighbor to the left

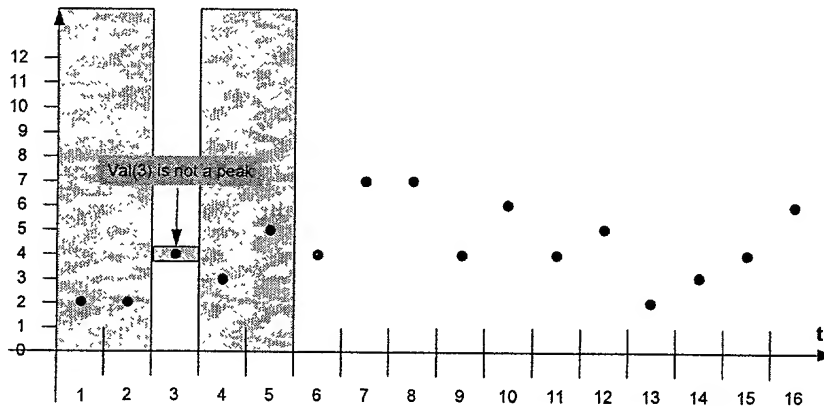
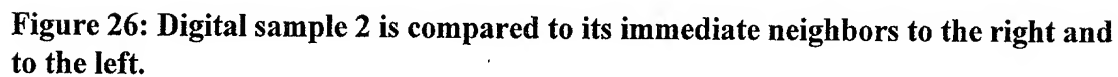
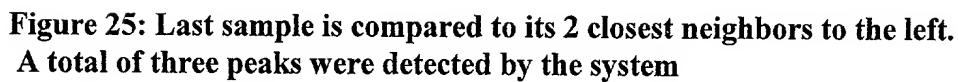


Figure 23: 3rd digital sample is compared to its 2 closest neighbors to the right and left (general situation)



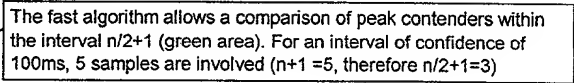
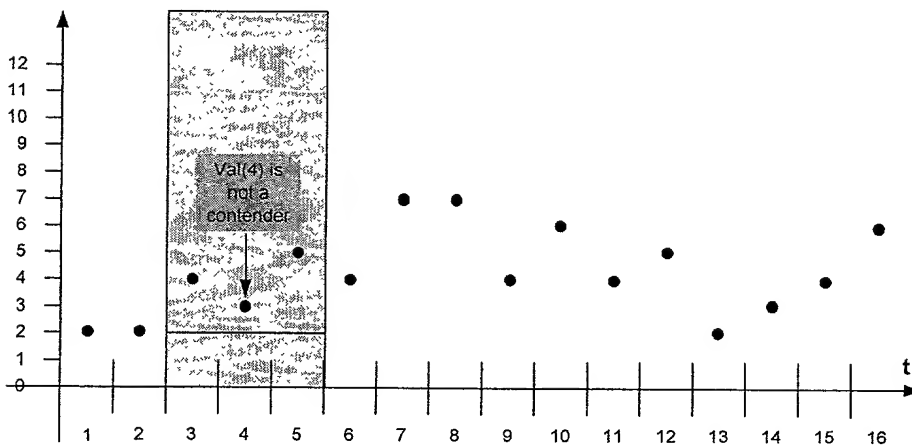


Figure 28



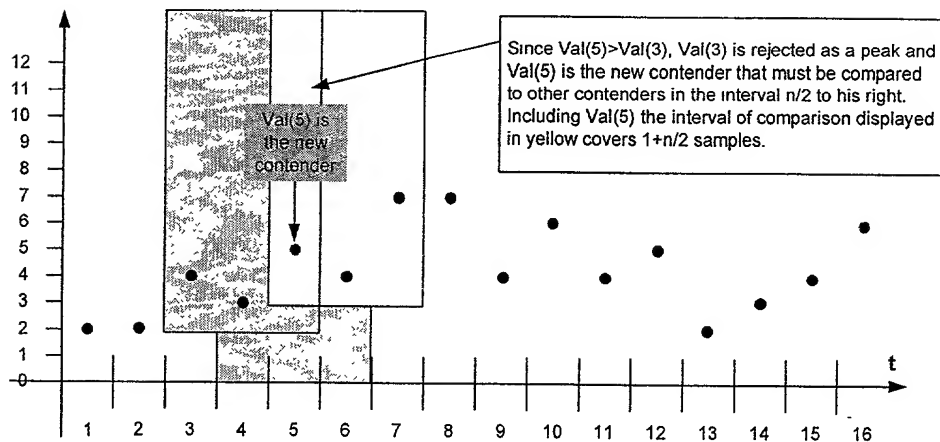


Figure 29

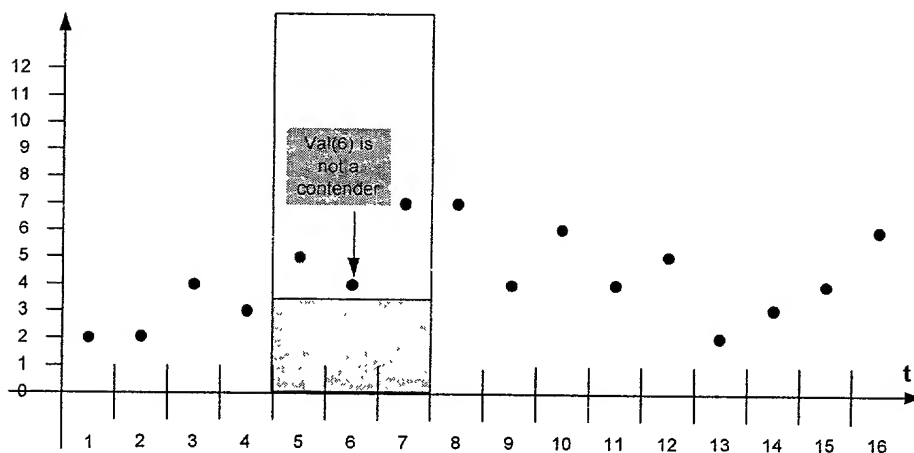


Figure 30

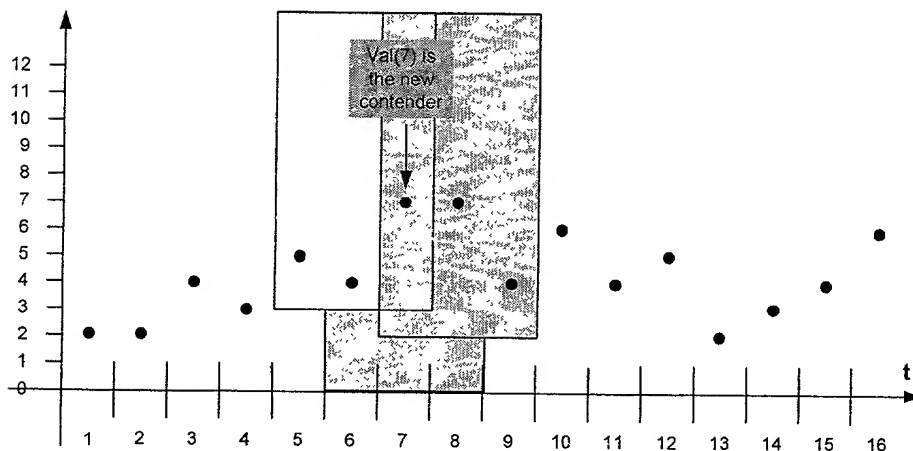


Figure 31

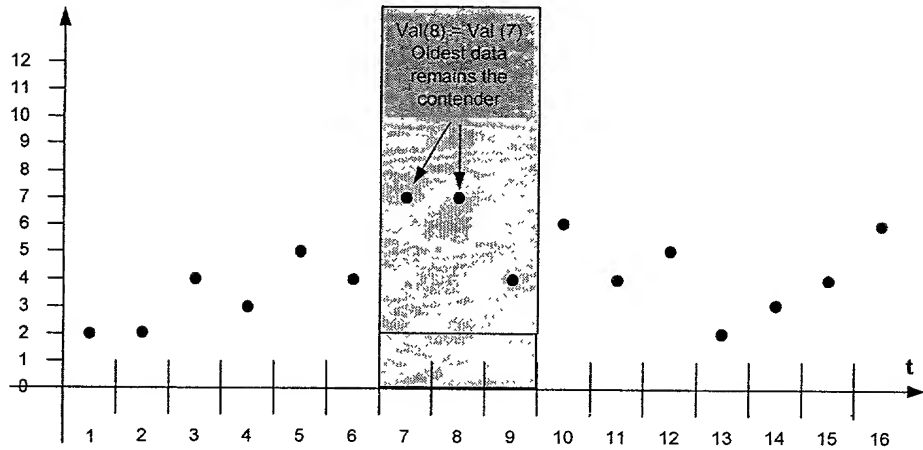


Figure 32

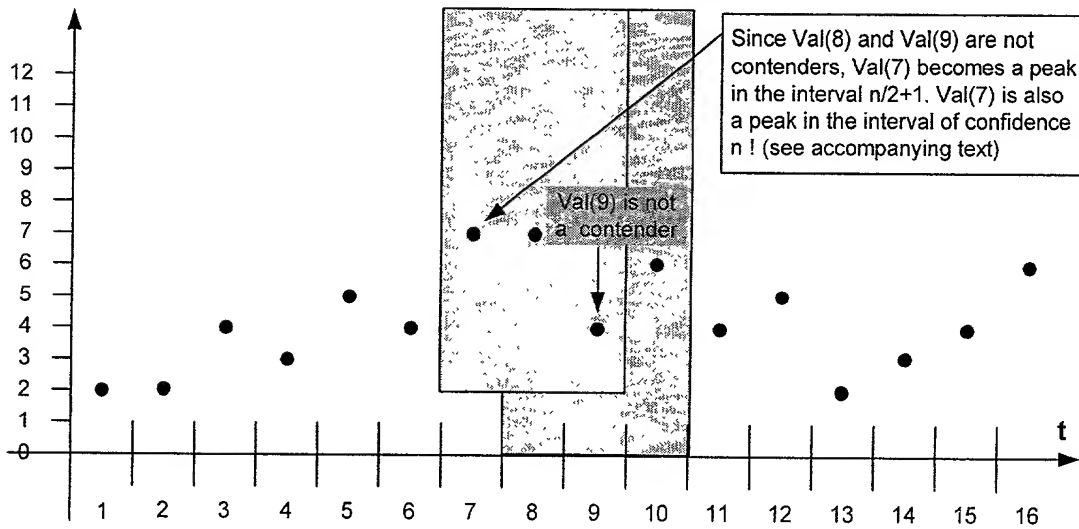


Figure 33

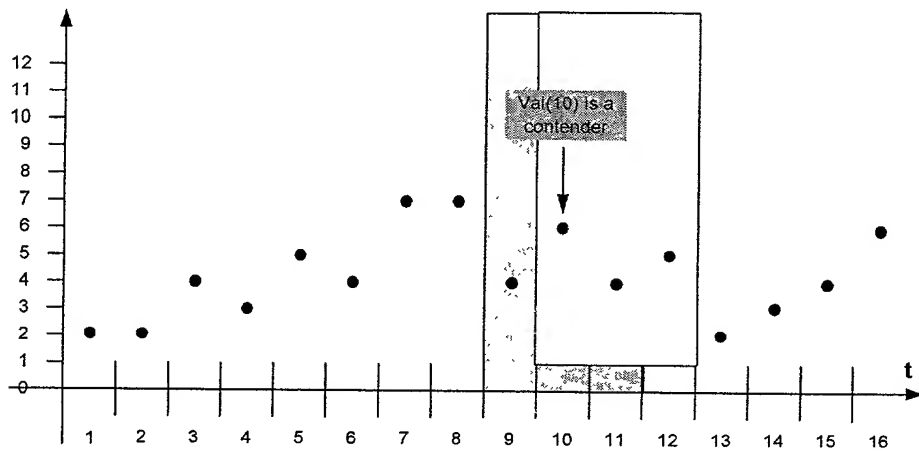


Figure 34

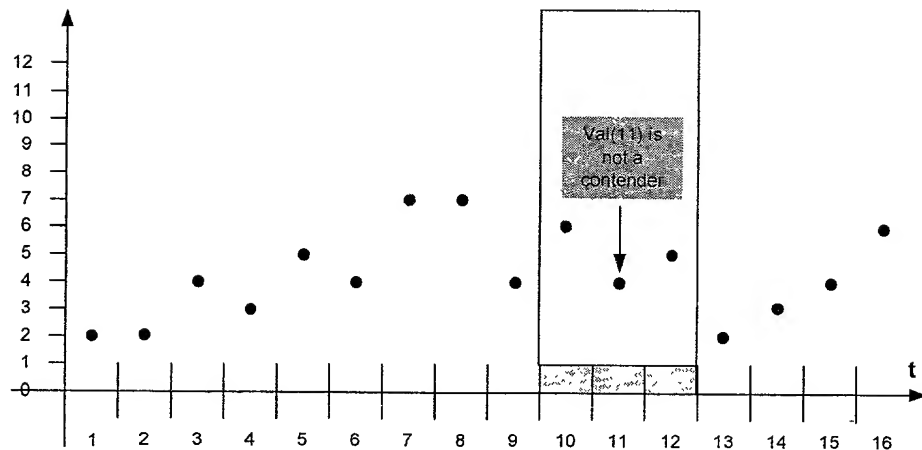


Figure 35

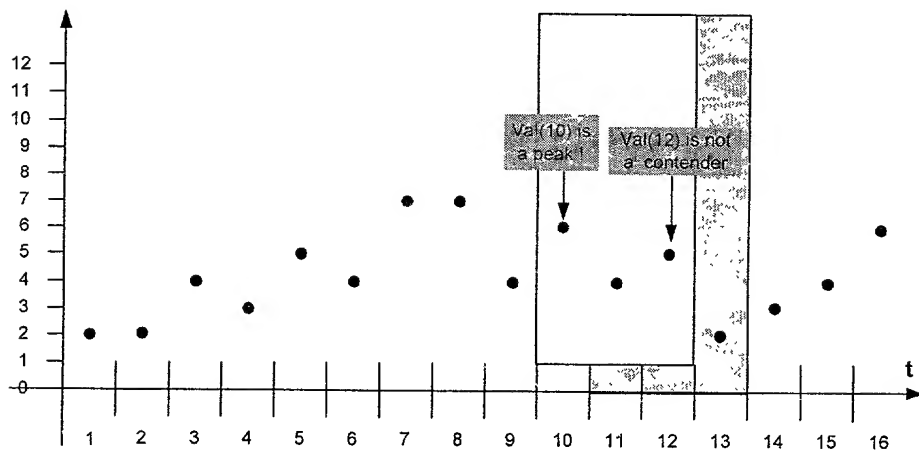


Figure 36

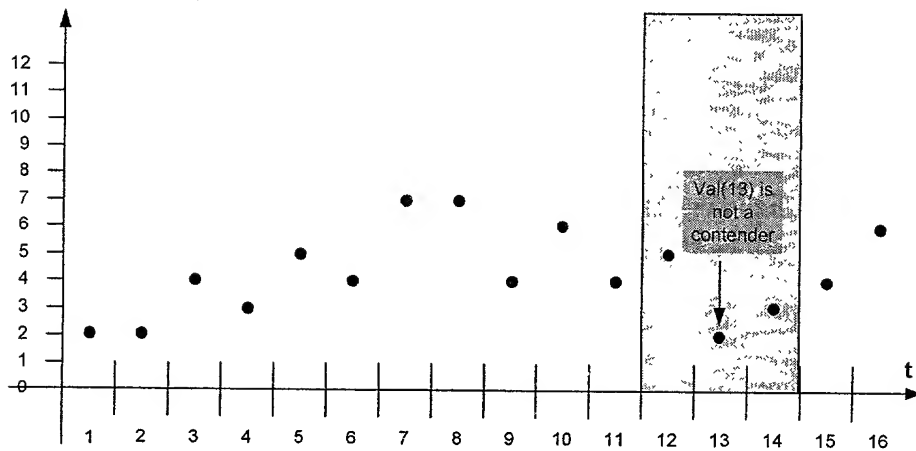


Figure 37

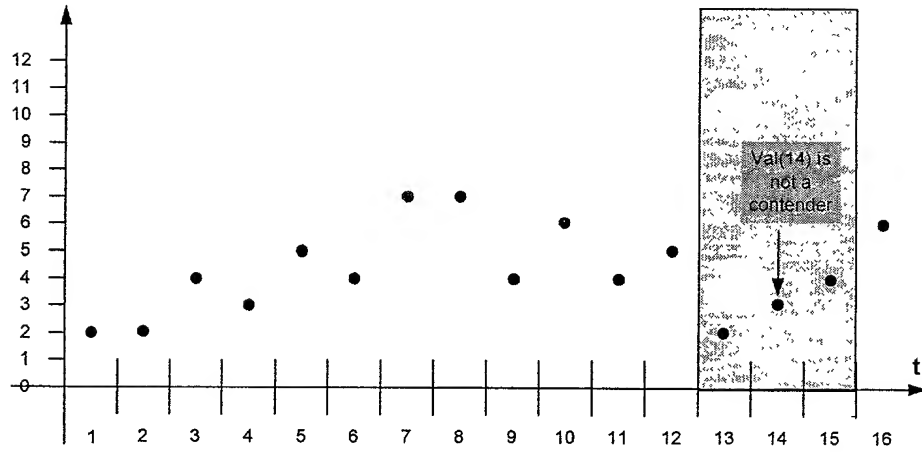


Figure 38

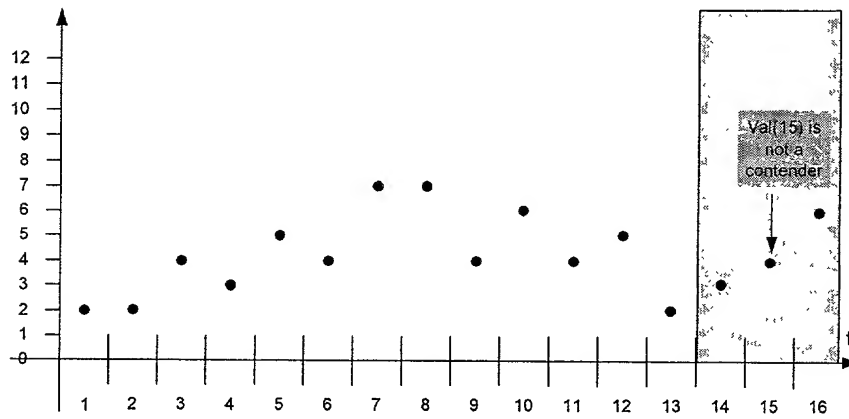


Figure 39

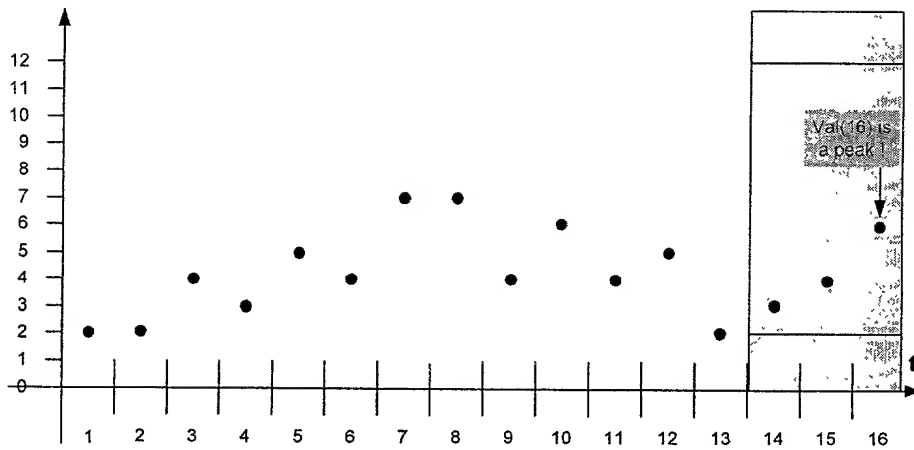


Figure 40

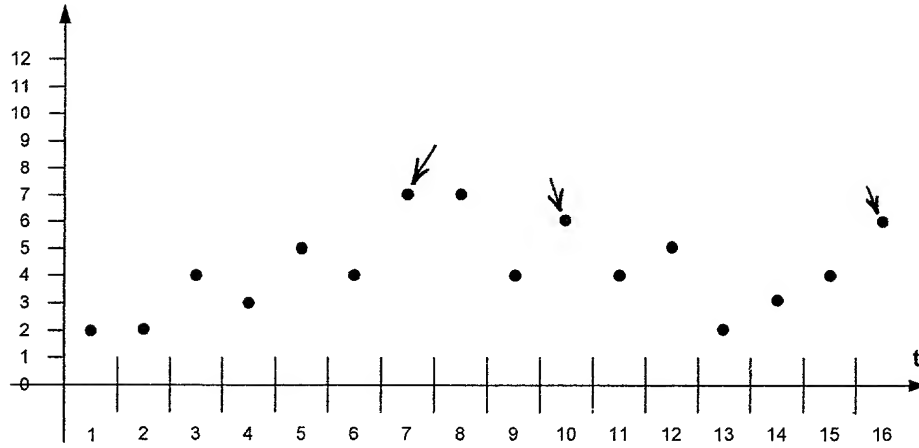


Figure 41: Three peaks

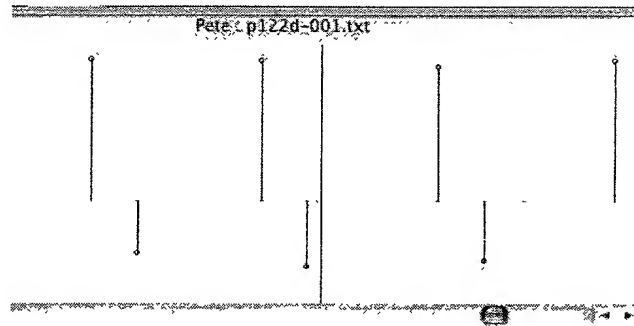


Figure 42: Butterfly (stroke frequency 0.7 Hz). Maxima and minima are displayed

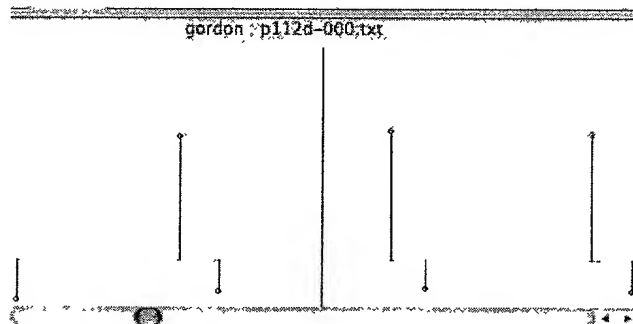


Figure 43: Butterfly. Maxima and minima are displayed

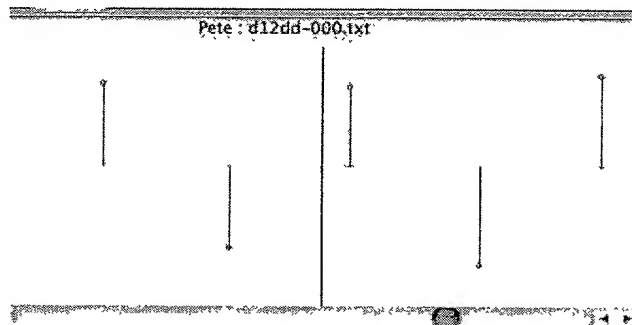


Figure 44: Backstroke. Maxima and minima are displayed

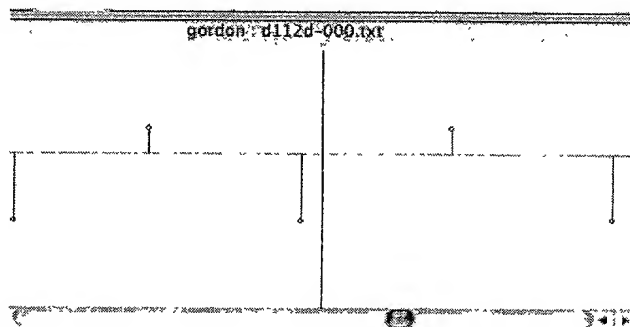


Figure 45: Backstroke (stroke frequency 0.4 Hz). Maxima and minima are displayed

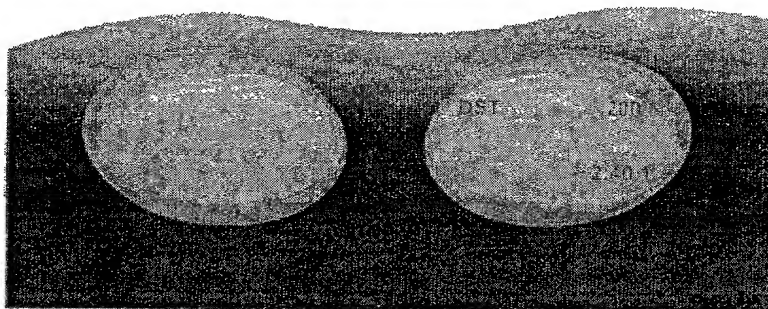


Figure 46

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